



BARTEL
ASSOCIATES, LLC

CITY OF NOVATO
MISCELLANEOUS AND SAFETY PLANS

CalPERS Actuarial Issues – 6/30/10 Valuation
Preliminary Results

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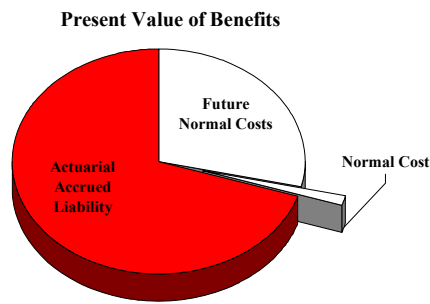
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Definitions



- **Present Value of Benefits:**
 - Discounted value (at valuation date - 6/30/10), of all future expected benefit payments based on various (actuarial) assumptions
- **Actuarial Liability:**
 - Discounted value (at valuation date) of benefits earned through valuation date [value of past service benefit]
 - Portion of PVB “earned” at measurement [value of past service benefit]



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Definitions

- **Current Normal Cost:**
 - Portion of PVB allocated to (or “earned” during) current year
 - Value of employee and employer current service benefit
- **Target-** Have money in the bank to cover Actuarial Liability (past service)
- **Unfunded Liability** - Money short of target at valuation date
- **Excess Assets / Surplus:**
 - Money over and above target at that point in time.
 - Doesn't mean you're done contributing.
- **Super Funded:**
 - Assets cover whole pie (PVB)
 - If all assumptions are met, you'll never have to put another (employer or employee) dime in for current employees.



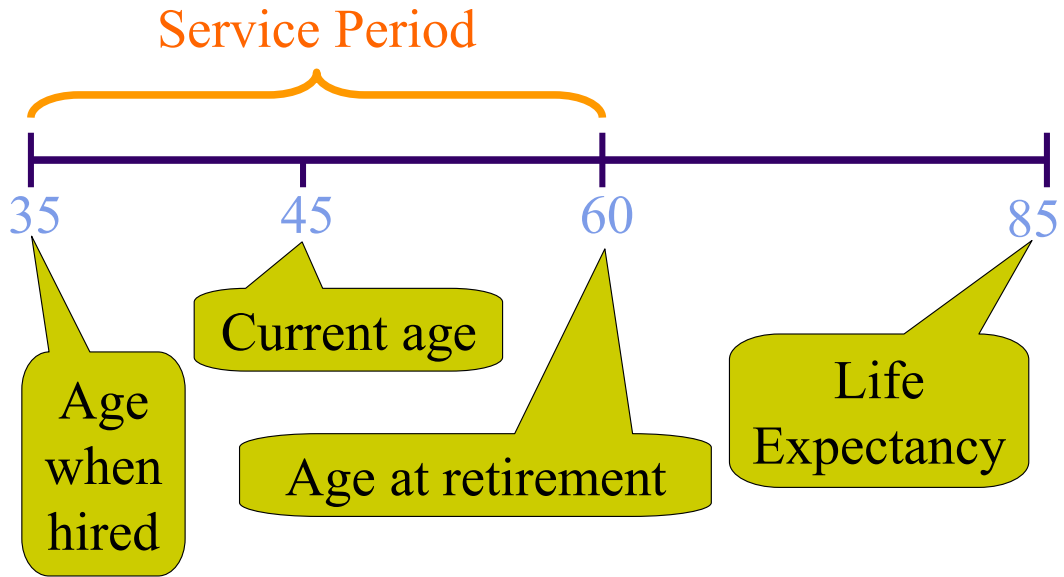
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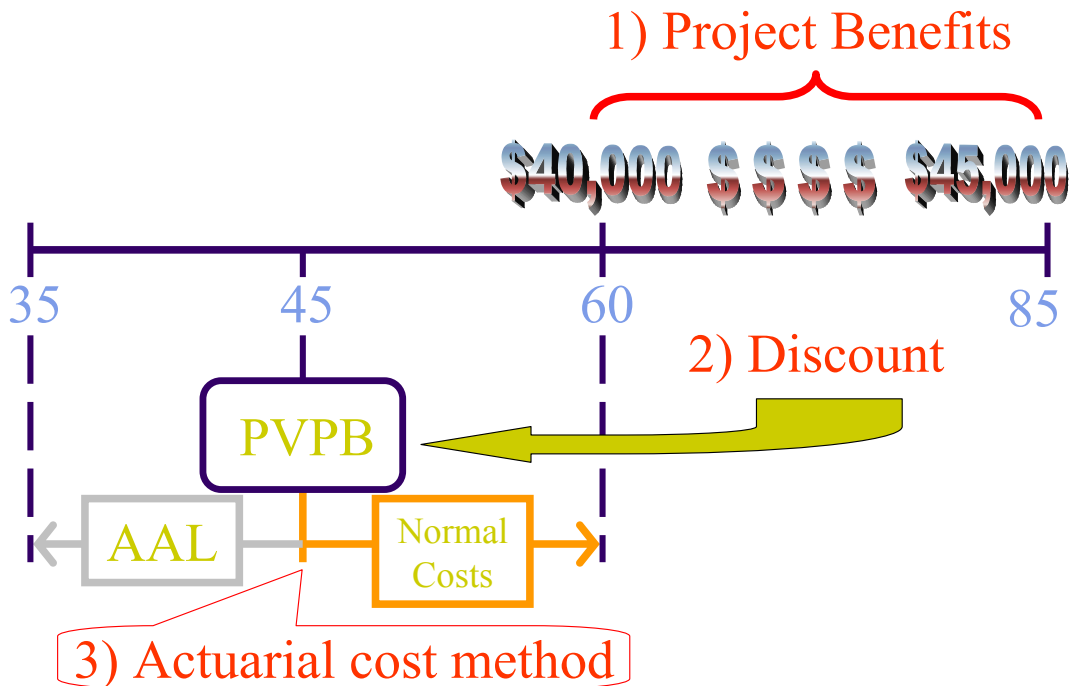


Definitions

Employee Age Timeline



Definitions



Highlights – Miscellaneous Plan

- Demographics
 - Recent decrease in active employees
 - Increase in average age
 - Increase in number of retirees
 - Average annual benefits are modest compared to enhanced formulas
- Benefit Level
 - Modest compared to enhanced formulas
 - Provides adequate benefit at retirement
- Investment Return:
 - Significant volatility
 - Poor investment return not be offset by recent good investment returns
 - Will drive contribution rates
 - CalPERS smoothes asset returns for contribution rate purposes



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Highlights – Miscellaneous Plan

- Funded Status:
 - June 30, 2010:
 - \$4.7 million unfunded liability on Actuarial Basis
 - Smoothed Market used to determine contribution rates
 - 93% funded ratio
 - Little change over the next few years
 - \$19.2 million unfunded liability on Market Basis
 - 72% funded ratio
 - Volatility into future based on investment return
- Contribution Rates:
 - Asset smoothing significantly mitigates recent investment losses
 - If investment return is as expected, contribution rates will gradually increase
 - If investment return is poor, contribution rates will increase sharply
 - If investment return is good, contribution rates will remain flat



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Highlights – Safety

- Demographics
 - Participates in 3%@55 Pooled Plan
 - Stable active counts
 - Average annual benefits are higher than compared to unenhanced formulas
 - 25% higher for age 50 retirement
 - 10% higher for age 55 and later retirement
- Benefit Level
 - Relatively high compared to Miscellaneous and unenhanced formulas
 - Provides significant benefit at retirement
- Investment Return:
 - Significant volatility
 - Poor investment return not offset by recent good investment returns
 - Will drive contribution rates
 - CalPERS smoothes asset returns for contribution rate purposes



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Highlights – Safety

- Contribution Rates:
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Summary of Demographic Information – Miscellaneous

	1994	2001	2009	2010	2011
Actives					
■ Counts	132	160	170	151	145
■ Average					
• Age	43	46	48	49	
• City Service	10	8	10	11	
• PERSable Wages	\$39,700	\$50,900	\$70,300	\$70,100	
■ Total PERSable Wages (millions)	5.7	9.1	13.2	11.6	10.0
Receiving Payments					
■ Counts					
• Service		66	128	150	
• Disability		8	12	11	
• Beneficiaries		<u>7</u>	<u>13</u>	<u>13</u>	
• Total	44	81	153	174	
■ Average Annual City Provided Benefit ¹					
• Service		\$12,200	\$17,600	\$19,700	
• Disability		7,500	7,900	7,100	
• Service Retirements in last 5 years		19,500	20,400	22,800	

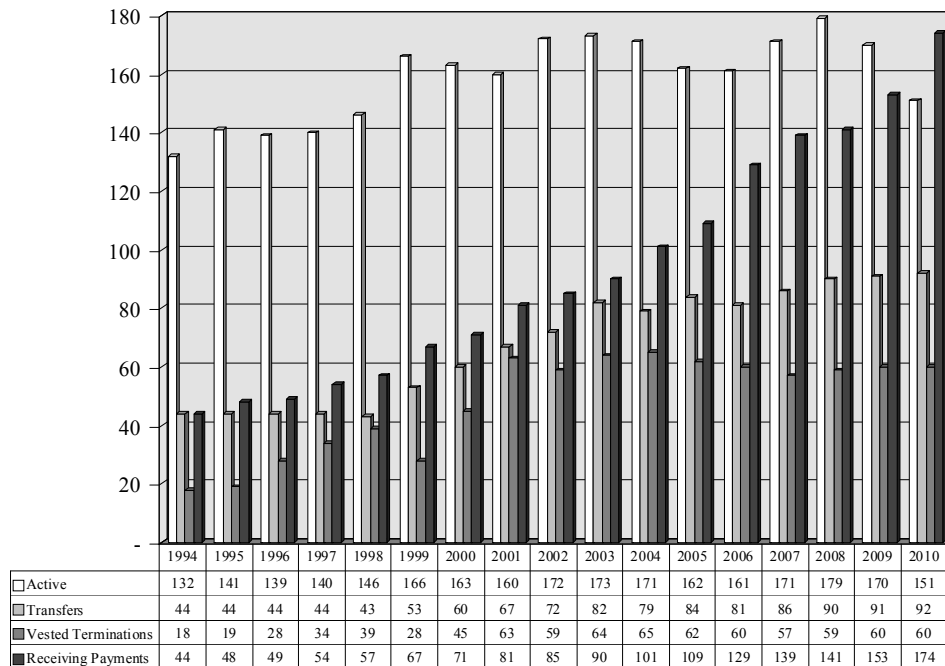
¹ Average City provided pensions are based on City service & City benefit formula, and are not representative of benefits for long service employees.



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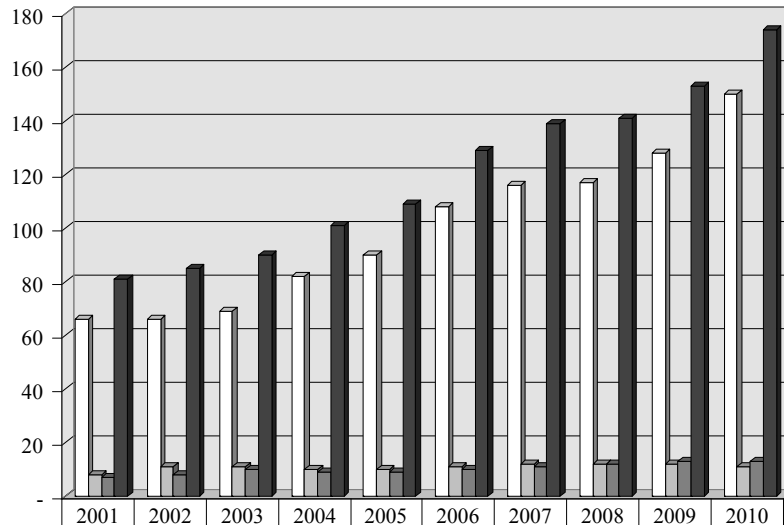
Members Included in Valuation Miscellaneous



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Members Receiving Payments Miscellaneous



Service Retirement	66	66	69	82	90	108	116	117	128	150
Disability Retirement	8	11	11	10	10	11	12	12	12	11
Beneficiaries	7	8	10	9	9	10	11	12	13	13
Total Retirements	81	85	90	101	109	129	139	141	153	174

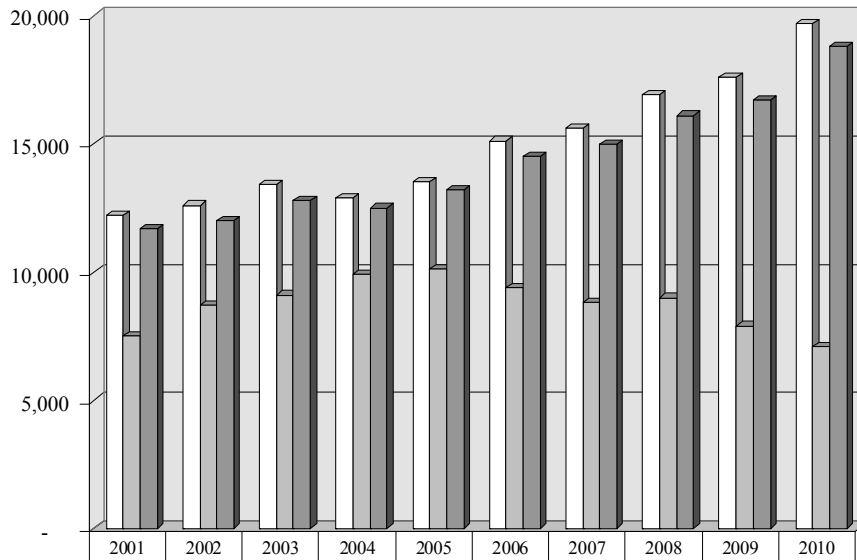


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Average Annuity Miscellaneous



Average Service Ret	12,200	12,600	13,400	12,900	13,500	15,100	15,600	16,900	17,600	19,700
Average Disabled Ret	7,500	8,700	9,100	9,900	10,100	9,400	8,800	9,000	7,900	7,100
Average Ret Annuity	11,700	12,000	12,800	12,500	13,200	14,500	15,000	16,100	16,700	18,800



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Average Annuity Miscellaneous

Service Retirement Retirees' Benefit										
Years Retired	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Under 5	\$ 19,475	\$ 18,707	\$ 19,571	\$ 16,290	\$ 12,304	\$ 15,371	\$ 16,726	\$ 18,474	\$ 20,377	\$ 22,820
5-9	6,836	6,049	10,234	13,263	20,978	22,076	20,744	20,740	18,570	17,258
10-14	9,348	11,599	11,060	10,722	10,074	9,833	8,174	10,565	15,650	19,187
15-19	10,210	9,603	10,459	8,376	8,645	9,239	12,340	13,331	13,634	12,356
20-24	3,338	5,380	7,701	10,102	15,260	15,830	11,189	11,475	11,165	8,590
25-29	1,259	2,337	1,689	4,071	3,276	3,408	4,640	5,077	9,378	11,731
Over 30	-	-	-	-	4,243	4,415	2,323	2,966	3,112	4,722
All Years	12,210	12,550	13,412	12,863	13,526	15,056	15,622	16,866	17,554	18,686



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Average Annuity Miscellaneous

Service Retirement Retirees' Benefit										
Attained Age	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
50-54	\$ 5,191	\$ 6,723	\$ 6,723	\$ 4,145	\$ 7,935	\$ 6,226	\$ 4,860	\$ 5,859	\$ 5,934	\$ 8,743
55-59	8,829	6,920	10,386	9,832	14,515	15,742	17,986	15,230	15,447	13,259
60-64	23,480	20,932	18,549	15,542	14,424	19,285	17,289	22,824	22,436	24,152
65-69	12,149	14,393	19,145	19,929	18,116	16,959	21,862	23,281	20,889	24,699
70-74	9,723	11,602	11,547	11,143	15,002	16,538	15,466	13,924	20,393	20,337
75-79	9,466	9,316	9,992	11,027	10,101	11,925	13,538	14,696	13,521	18,613
80-84	6,319	5,975	8,191	10,775	12,526	13,324	9,726	9,661	13,252	11,459
85 & over	13,783	14,059	7,737	7,751	7,942	8,258	10,472	9,619	9,198	11,009
All Ages	12,210	12,550	13,412	12,863	13,526	15,056	15,622	16,866	17,554	18,686

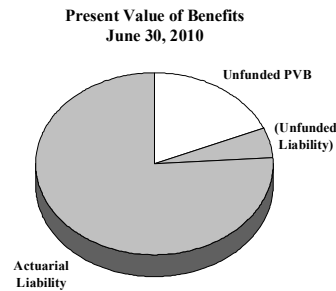
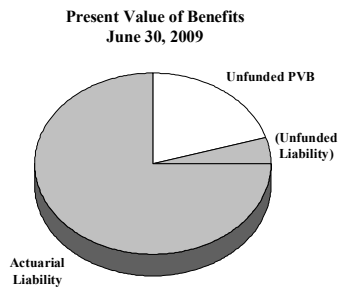


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Plan Funded Status Miscellaneous



<u>June 30, 2009</u>			<u>June 30, 2010</u>	
\$	65,300,000	Actuarial Liability	\$	68,800,000
	61,300,000	Actuarial Asset Value		64,100,000
	(4,000,000)	(Unfunded Liability)		(4,700,000)
<u>June 30, 2009</u>			<u>June 30, 2010</u>	
\$	65,300,000	Actuarial Liability	\$	68,800,000
	44,100,000	Market Asset Value		49,600,000
	(21,200,000)	(Unfunded Liability)		(19,200,000)



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Plan Funded Status Miscellaneous

- What happened between 6/30/09 and 6/30/10?
 - Market Value Asset Gain/(Loss) ≈ 2.6 million
 - Unfunded Liability increase ≈ (0.7) million

- Reasons for Unfunded Liability increase
 - Actuarial Asset gain/(loss): ≈ (1.0) million
 - \$15 million remaining unrecognized asset losses
 - Actuarial gain/(loss): ≈ 1.0 million
 - Average Salary \$70,300 → \$70,100
 - Number of Actives 170 → 151
 - Number of Inactives 151 → 152
 - Number of Retirees 153 → 174
 - Plan Change (Golden Handshake) ≈ (0.3) million
 - Other gain/(loss): ≈ (0.4) million
 - Contributions
 - Other (expected)

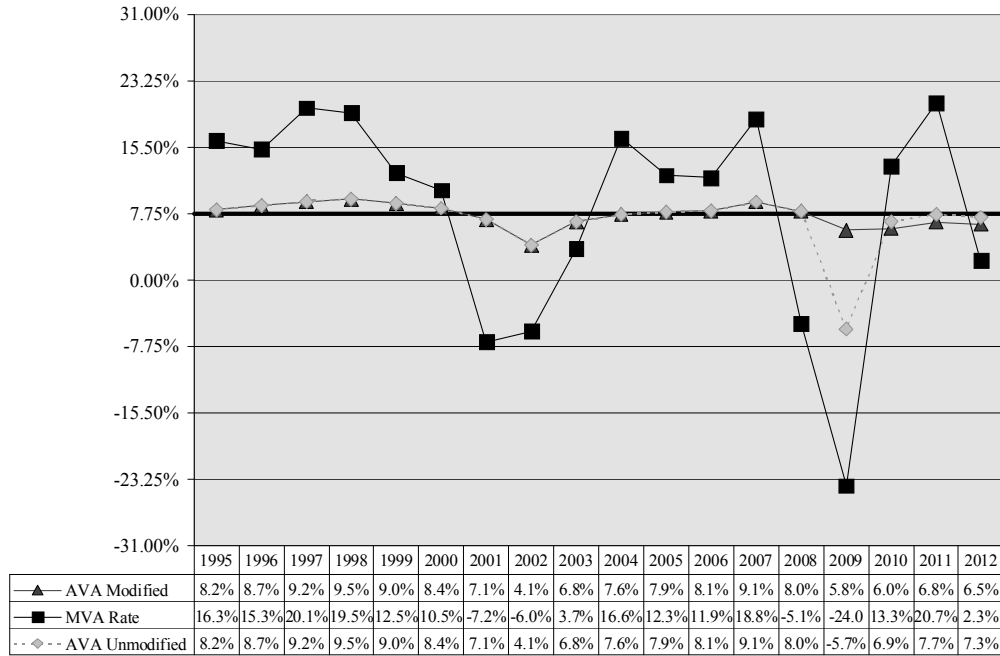


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Actuarial Investment Return Miscellaneous



Above assumes contributions, payments, etc. received evenly throughout year.



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Actuarial Investment Return Miscellaneous

	Market	Actuarial
■ June 30, 2008		
● Return	(5.1)%	8.1%
● Gain/Loss	(12.9)%	(0.3)%
■ June 30, 2009		
● Return	(24.0)%	6.1%
● Gain/Loss	(31.8)%	(1.7)%
■ June 30, 2010		
● Return	13.3%	6.0%
● Gain/Loss	5.5%	(1.8)%
■ June 30, 2011		
● Return	20.7%	6.8%
● Gain/Loss	12.9%	(1.0)%
■ June 30, 2012		
● Return through 10/31/11	(2.7)%	n/a
● Est. Annualized Return	2.3%	6.9%
● Est. Gain/Loss	(5.5)%	(0.9)%

■ Accumulated Market Value Gains/(Losses) through June 30, 2011 \approx (26.3)%
 [(12.9)% + (31.8)% + 5.5% + 12.9%]



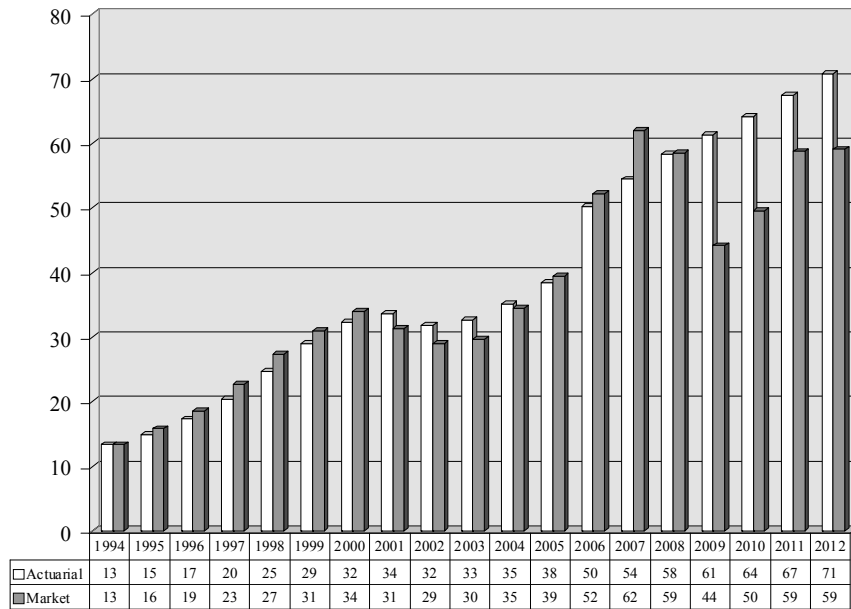
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Asset Values (Millions) Miscellaneous

Includes POB Proceeds



6/30/11 & 6/30/12 asset values estimated.

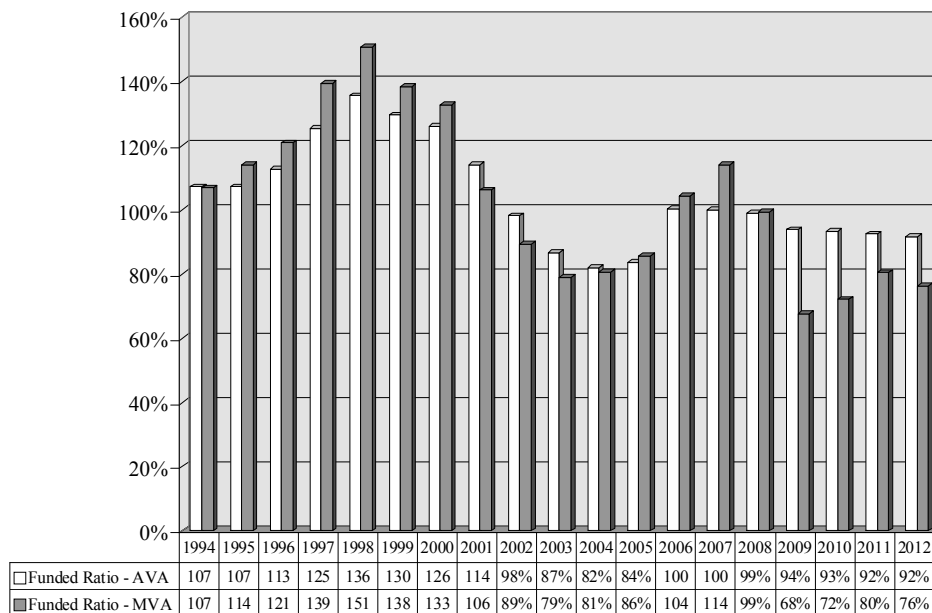


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Funded Status Miscellaneous

Includes POB Proceeds But Not POB Balance as a Liability



6/30/11 & 6/30/12 funded status estimated

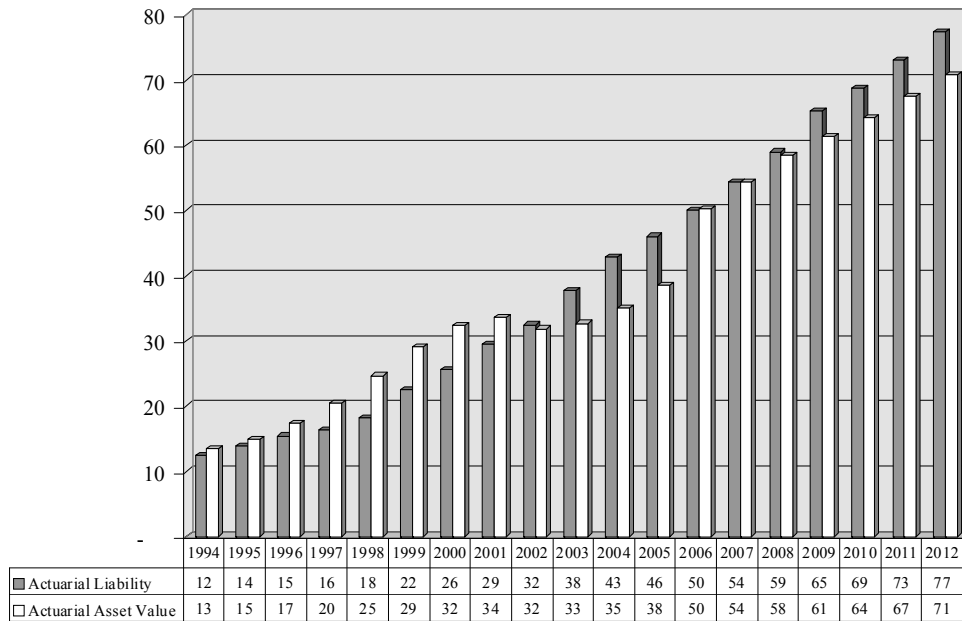


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Funded Status (Millions) Miscellaneous

Includes POB Proceeds But Not POB Balance as a Liability



6/30/11 & 6/30/12 funded status estimated



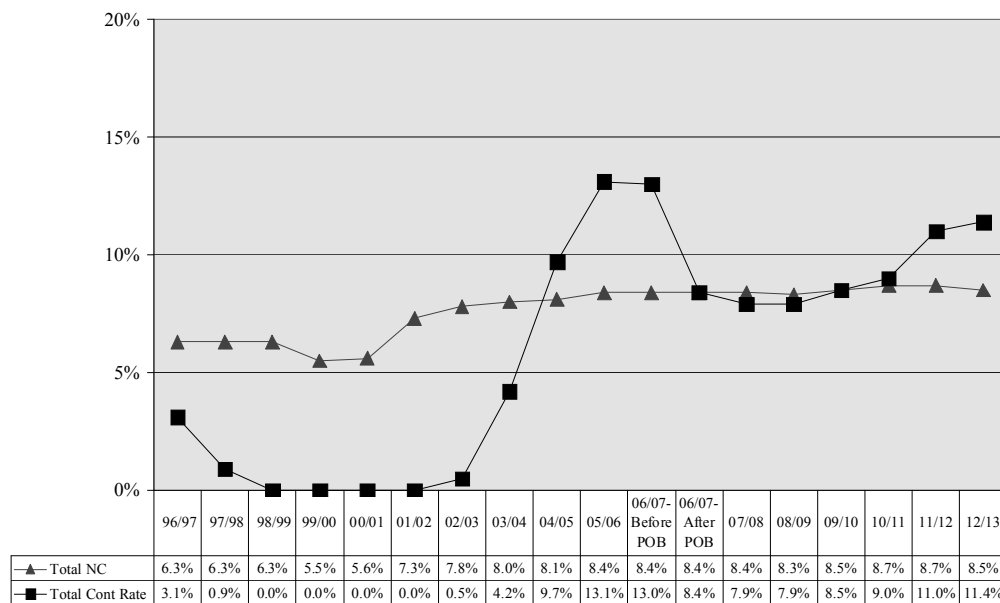
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Contribution Rates Miscellaneous

Includes POB Proceeds But Not Debt Service



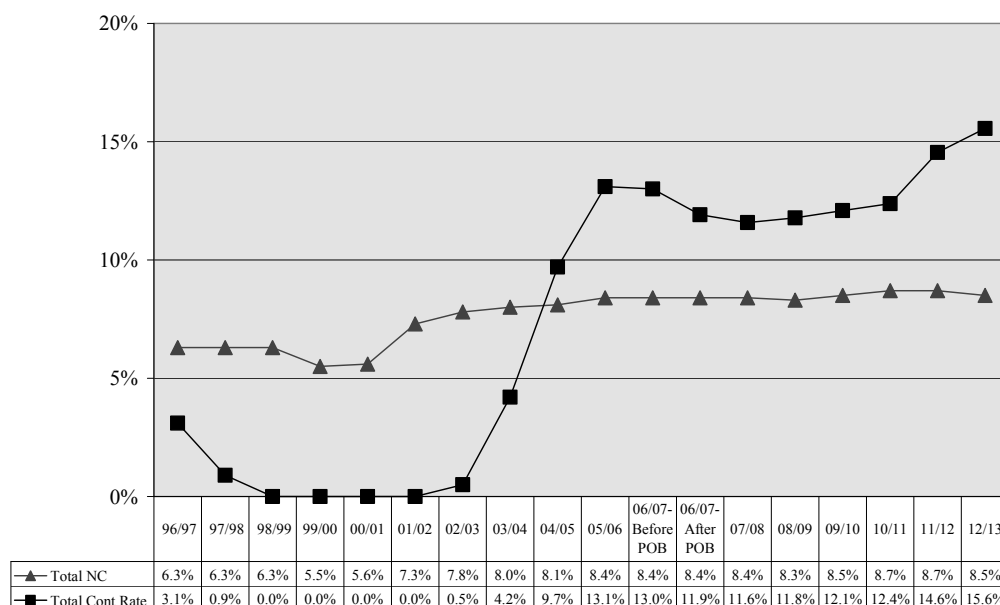
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Contribution Rates Miscellaneous

Includes POB Proceeds And Debt Service



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Contribution Rates Miscellaneous

	<u>6/30/09</u> <u>2011/2012</u>	<u>6/30/10</u> <u>2012/2013</u>
■ Normal cost	8.7%	8.5%
■ Amortization bases:	<u>2.3%</u>	<u>2.9%</u>
■ Total Contribution Rate	11.0%	11.4%
■ Amortization period	Multiple ≈ 25 years	Multiple ≈ 24 years
■ POB Debt Service	3.6%	4.2%
■ What Happened from 6/30/09 to 6/30/10:		
● 2011/12 Rate	11.0%	
● (Gains)/Losses	<u>0.4</u>	
● 2012/13 Rate	11.4%	



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Employer Rate Projections
Includes POB Proceeds But Not Debt Service
Miscellaneous

- Market Value Investment Return:
 - June 30, 2010 13.3%²
 - June 30, 2011 20.7%³
 - June 30, 2012⁴
 - Poor Investment Return: ≈ -2.44%
 - Expected Investment Ret: ≈ 2.26%
 - Good Investment Return: ≈ 7.00%
 - June 30, 2013 - 2016
 - Poor Investment Return: ≈ 0.4% - 3.6%
 - Expected Investment Ret: ≈ 7.75%
 - Good Investment Return: ≈ 11.8% - 15.3%
- No Other: Gains or Losses, Method or Assumption Changes or Benefit Improvements
- Excludes Employer Paid Member Contributions (EPMC)

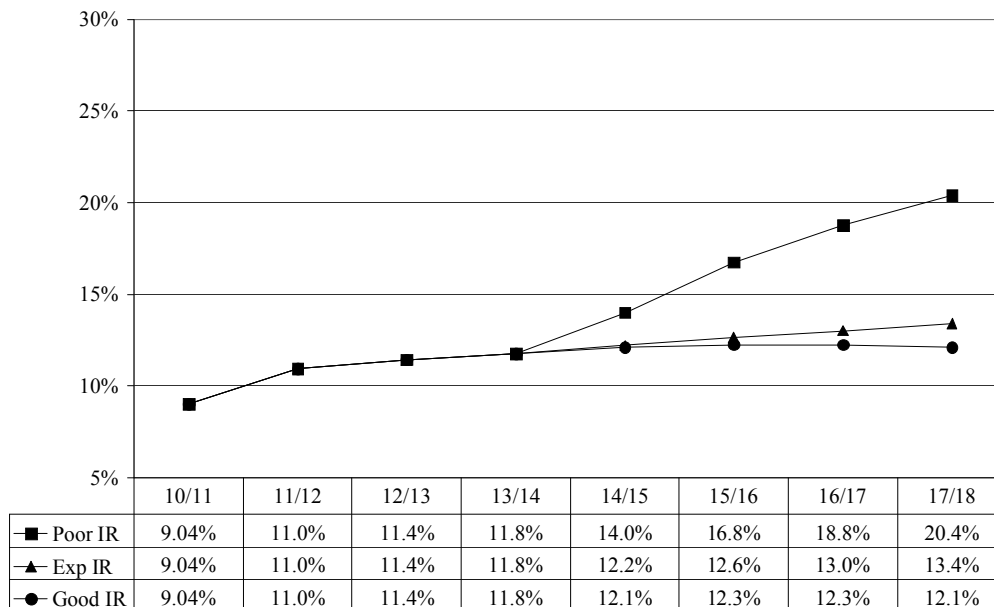
² As reported by CalPERS.

³ As reported by CalPERS.

⁴ Based on CalPERS actual return -2.7% through 10/31/11 and various returns for the remaining 8 months.

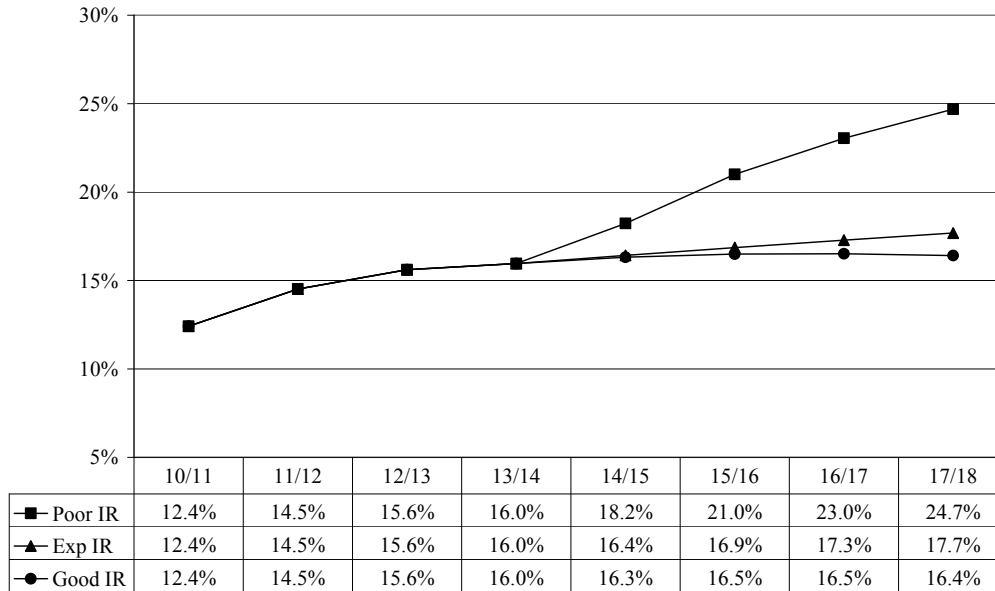


Employer Rate Projections
Includes POB Proceeds But Not Debt Service
Miscellaneous
Investment Return Varies



Employer Rate Projections
Includes POB Proceeds And POB Debt Service
Miscellaneous

Investment Return Varies



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Employer Rate Projections
Miscellaneous

PERSable Payroll
 ('000s)

■ CalPERS valuation report 6/30/10 payroll	\$10,581
■ City actual FY 09/10 payroll	10,315
■ City actual FY 10/11 payroll	9,864
■ Estimated City FY 11/12 budgeted payroll	8,416

Adjusted Valuation Payroll

	City Adjusted	CalPERS Projected
■ 6/30/11	\$9,864 x 1.0325 ^{1/2} = \$10,023	\$10,925
■ 6/30/12	\$8,416 x 1.0325 ^{1/2} = \$8,552	11,280

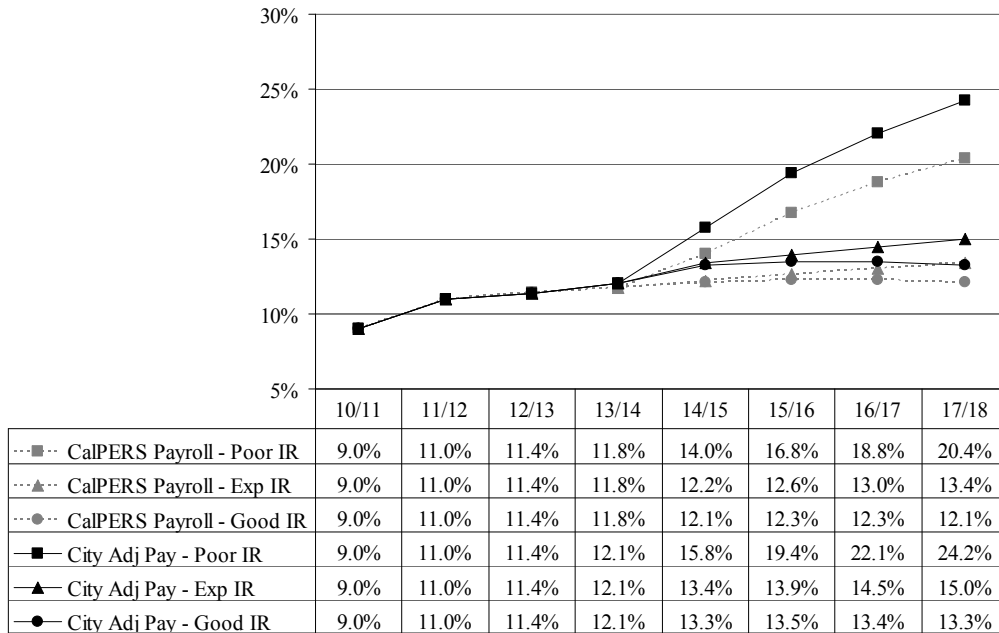


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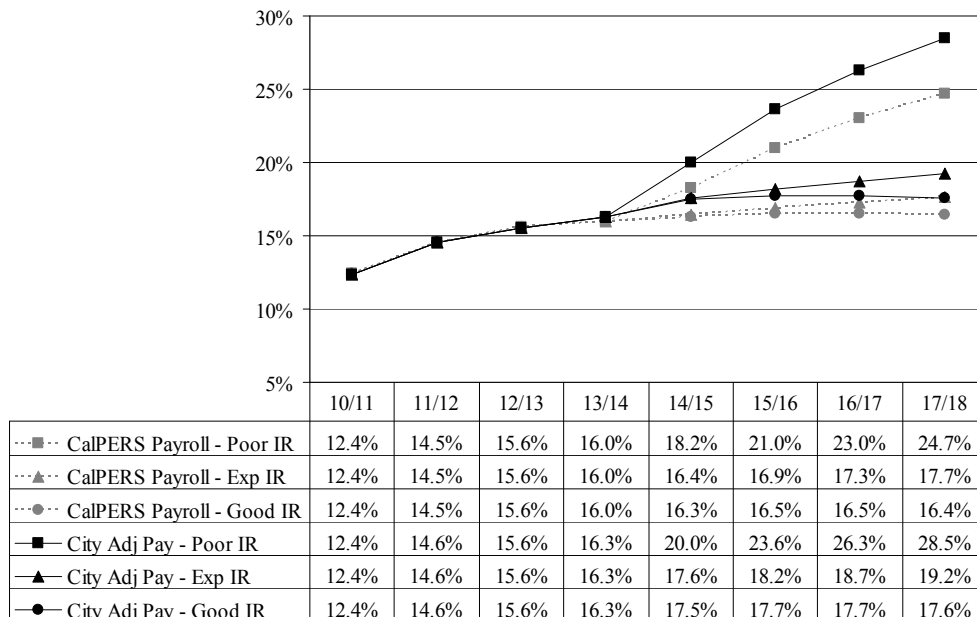
Employer Rate Projections
Includes POB Proceeds But Not Debt Service
Miscellaneous

Investment Return Varies



Employer Rate Projections
Includes POB Proceeds And POB Debt Service
Miscellaneous

Investment Return Varies



**Pooled Plan Contributions
Safety**

	<u>6/30/09 2011/2012</u>	<u>6/30/10 2012/2013</u>
■ Employer Contribution Required		
● Risk Pool's Net Employer Normal Cost	15.7%	15.5%
● Risk Pool's Payment on Amortization Bases	4.6%	4.6%
● Class 1 Benefits		
<input type="checkbox"/> FAC 1	0.9%	0.9%
● Amortization of Side Fund	<u>0.2%</u>	<u>0.2%</u>
● Total ER Contribution	21.4%	21.2%
● POB Debt Service	9.2%	9.3%



**Pooled Plan Contributions
Safety**

■ What Happened from 6/30/09 to 6/30/10:	
● 2011/12 Rate	21.4%
● Normal Cost	-0.2
● Payment on Side Fund	<u>0.0</u>
● 2012/13 Rate	21.2%



**Pooled Plan Contributions
Includes POB Proceeds But Not POB Debt Service
Safety**

- Market Value Investment Return:
 - June 30, 2010 13.3%⁵
 - June 30, 2011 20.7%⁶
 - June 30, 2012 ⁷
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⁵ As reported by CalPERS press release.

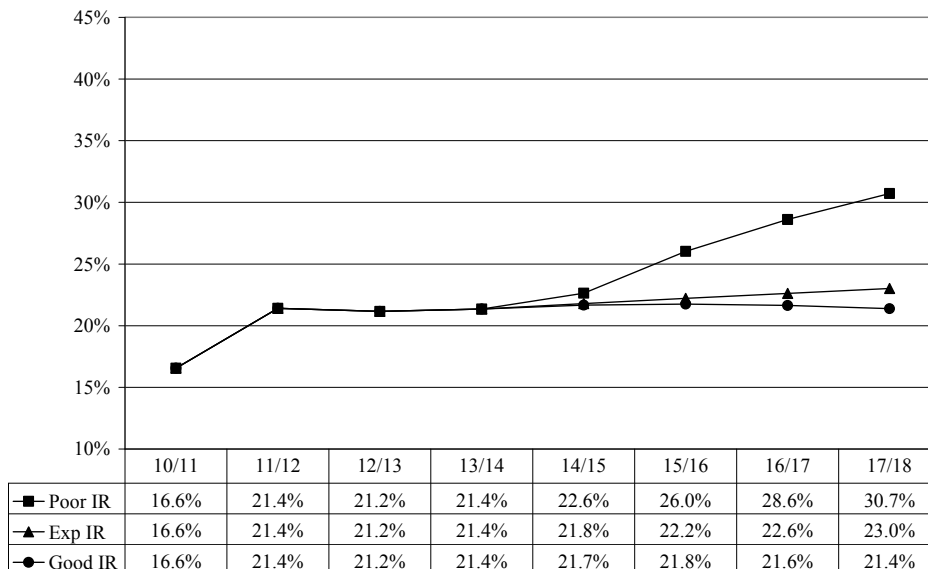
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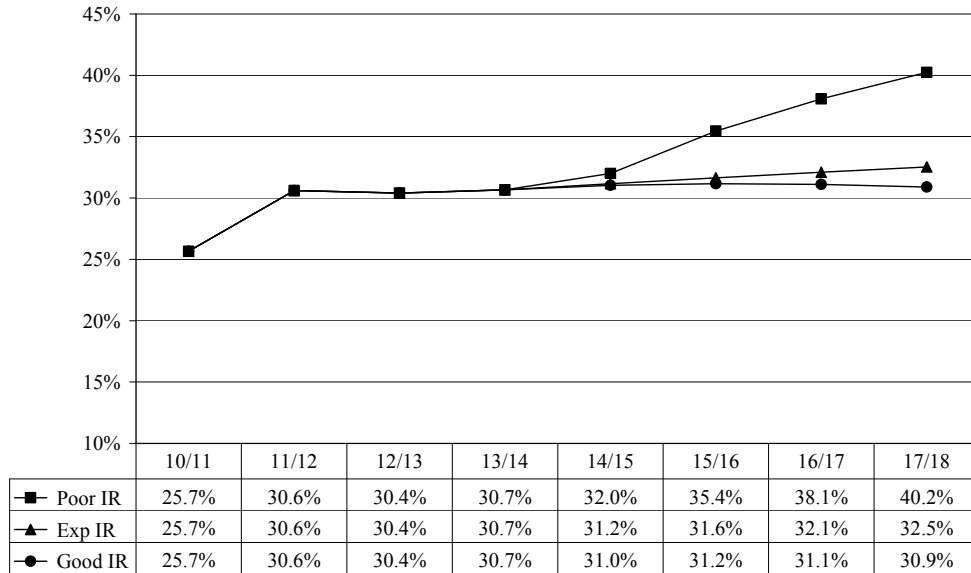
**Pooled Plan Contributions
Includes POB Proceeds But Not POB Debt Service
Safety**

Investment Return Varies



**Pooled Plan Contributions
Includes POB Proceeds And POB Debt Service
Safety**

Investment Return Varies



**Pooled Plan Contributions
Includes POB Proceeds And POB Debt Service
Safety**

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Side Fund Safety

- CalPERS requires side fund paid off with amortization schedule:
 - June 30, 2012 Balance \$113,000
 - 7.75% interest
 - Level percent of pay: 3.25% payroll increase
 - Payment for 2012/13 = \$10,378
 - Actual amounts paid based on percentage (0.2%) times 2012/13 payroll.
- Difference between expected and actual payments:
 - goes to pool
 - overpayments (underpayments) do not decrease (increase) the side fund's outstanding balance
- Contribution rate (0.2%) adjusted each year based on
 - amortization payment and
 - CalPERS expected City projected payroll.
- Amortization payments end July 1, 2027



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POB

- Pension Obligation Bonds Issued by Miscellaneous and Safety
 - **2006 POB – Series A-1**

<input type="checkbox"/> Original Principal	\$15,550,000
<input type="checkbox"/> Discount	(181,150)
<input type="checkbox"/> Premium	<u>135,109</u>
<input type="checkbox"/> Total	15,503,958
 - **2006 POB – Series A-2**

<input type="checkbox"/> Original Principal	<u>2,746,066</u>
---	------------------
 - **Total** **\$18,250,024**
- POB Proceed Allocation

● Miscellaneous	\$ 8,000,000
● Safety	<u>10,250,024</u>
● Total	\$18,250,024
- Series A-2 bond does not require payment until after A-1 bond is paid in full.
- Interest Rates

● Series A-1	5.69% - 5.93%
● Series A-2	5.67% - 6.12%



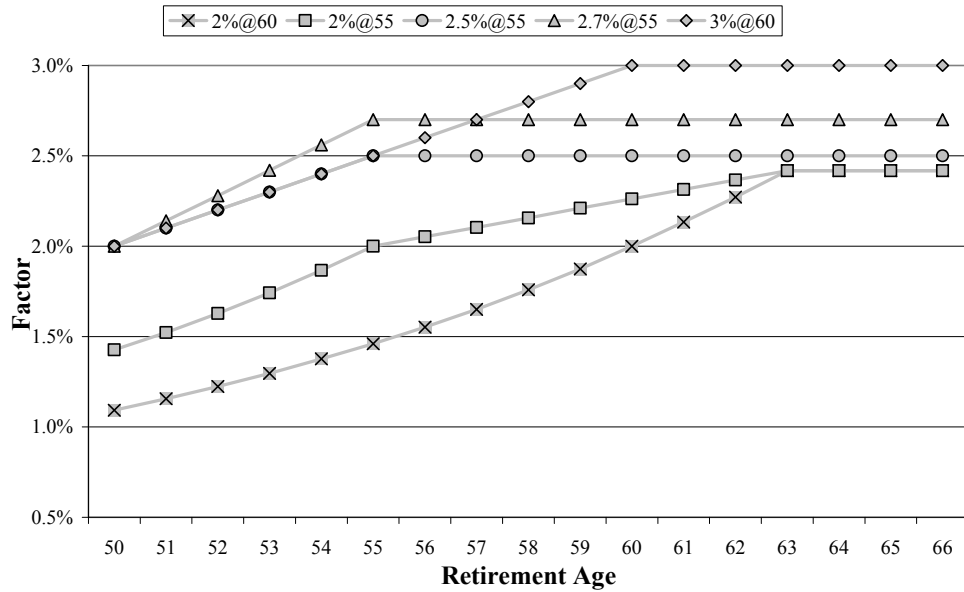
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Benefit Factors Miscellaneous

Benefit Factor Comparison



Benefit Factors Miscellaneous

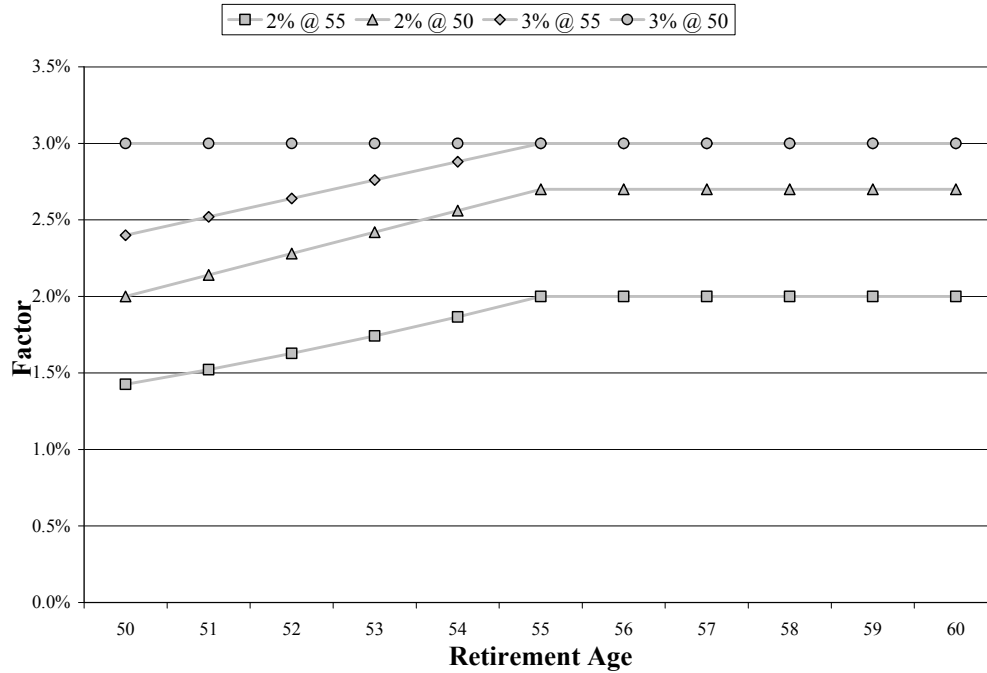
<u>Age</u>	<u>2%@60</u>	<u>2%@55</u>	<u>2.5%@55</u>	<u>2.7%@55</u>	<u>3%@60</u>
50	1.092%	1.426%	2.000%	2.000%	2.000%
51	1.156%	1.522%	2.100%	2.140%	2.100%
52	1.224%	1.628%	2.200%	2.280%	2.200%
53	1.296%	1.742%	2.300%	2.420%	2.300%
54	1.376%	1.866%	2.400%	2.560%	2.400%
55	1.460%	2.000%	2.500%	2.700%	2.500%
56	1.552%	2.052%	2.500%	2.700%	2.600%
57	1.650%	2.104%	2.500%	2.700%	2.700%
58	1.758%	2.156%	2.500%	2.700%	2.800%
59	1.874%	2.210%	2.500%	2.700%	2.900%
60	2.000%	2.262%	2.500%	2.700%	3.000%
61	2.134%	2.314%	2.500%	2.700%	3.000%
62	2.272%	2.366%	2.500%	2.700%	3.000%
63	2.418%	2.418%	2.500%	2.700%	3.000%
64	2.418%	2.418%	2.500%	2.700%	3.000%
65	2.418%	2.418%	2.500%	2.700%	3.000%

<u>Member Contribution Rate</u>					
	7%	7%	8%	8%	8%



Benefit Factors Safety

Benefit Factor Comparison



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Benefit Factors Safety

<u>Age</u>	<u>2% @ 55</u>	<u>2% @ 50</u>	<u>3% @ 55</u>	<u>3% @ 50</u>
50	1.426%	2.00%	2.40%	3.00%
51	1.522%	2.14%	2.52%	3.00%
52	1.628%	2.28%	2.64%	3.00%
53	1.742%	2.42%	2.76%	3.00%
54	1.866%	2.56%	2.88%	3.00%
55	2.00%	2.70%	3.00%	3.00%
56	2.00%	2.70%	3.00%	3.00%
57	2.00%	2.70%	3.00%	3.00%
58	2.00%	2.70%	3.00%	3.00%
59	2.00%	2.70%	3.00%	3.00%
60	2.00%	2.70%	3.00%	3.00%

Member Contribution Rate

8%	9%	9%	9%
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Future Rate Mitigation Strategies

- Hybrid Plan
- Employer Paid Member Contribution Rates
- Employees Pay Portion of City Contribution Rate
- 2nd Tier Alternatives



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Hybrid Plan

- **Modest Defined Benefit Plan with 457/401K Supplement**
 - Only CalPERS 1.5%@65 meets modest criteria
 - Available only for agencies participating in social security
 - Not an option for City



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Employer Paid Member Contribution Rates City Pays Portion of Member Rates

- 5% for Miscellaneous employees hired < 1/1/11
- 7% for Safety employees hired < 1/1/11



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§20516 Cost Sharing EE Pays Portion of ER Rates

- Limited to benefit improvements \geq January 1, 1979
- Normal Cost – Goes on “forever”
- Actuarial Liability Increase
 - Statute:
 - Maximum 30 years
 - From implementation of Cost Sharing
 - CalPERS
 - 20 years
 - From implementation of benefit improvement
- Can be cumulative, e.g.
 - 3%@50 + Highest Year
 - 2.7%@55 + Highest Year + 2%@55



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Current Benefits

■ Key Terminology/ Acronyms

- FAE – Final Average Earnings
- PRSA – Post Retirement Survivor Allowance
- COLA – Cost of Living Adjustment
- EPMC – Employer Paid Member Contributions
- ER Contr – Employer Contributions
- PERS on PERS
 - Extra ‘cost’ based on each benefit component that is attributable to contributions being PERSable wages.



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Current Benefits

	Miscellaneous	Safety
■ Benefit Formula	2% @ 55	3% @ 55
■ FAE ⁸	One Year (FAE1)	One Year (FAE1)
■ PRSA	No	No
■ COLA	2%	2%
■ EPMC ⁹	5.0%	7.0%
■ 12/13 ER Contr.	11.4%	21.2%
■ EPMC	5.0	7.0
■ PERS on PERS ¹⁰	<u>0.8</u>	<u>2.0</u>
■ Total	17.2	30.2

⁸ Three Year FAE for employees hired on or after 1/1/11.

⁹ Effective 1/1/12.

¹⁰ PERS on PERS for employees hired before 1/1/11 only.



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Alternative Benefits

- **Alternative Benefits** – Employees Hired \geq 7/1/12
 - Miscellaneous: 2%@55, 2%@60
 - Safety: 3%@55, 2%@50
 - All alternative formulas with FAE 3
- **Estimated ER Normal Cost**¹¹
 - Based on Risk Pool Normal Cost from 6/30/10 valuations
 - Adjusted for demographic differences
- **Estimated Savings**
 - Projections based on benefits earned, not benefits being paid out
 - Tier 1 savings % apply to Tier 1 payroll, Tier 2 savings % apply to Tier 2 payroll

¹¹ Includes normal cost, EMPC and PERS on PERS.



Alternative Benefits

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Miscellaneous Alternative Benefits

New Employees – New Tier 2

Scenario	Tier 2 Cost Savings	General Fund Cost Savings Projections (Annual)	
■ Current formula with FAE3, City pays EPMC but does not report as PERSable wages	1.3% ¹²	Year 1	\$7,000
		Year 5	33,000
		Year 11	83,000
■ Current formula with FAE3, City does not pay EPMC	6.3%	Year 1	\$32,000
		Year 5	153,000
		Year 11	389,000
■ Lower formula to 2%@60 with FAE3, City pays EPMC but not report as PERSable wages	2.5%	Year 1	\$13,000
		Year 5	59,000
		Year 11	151,000

¹² Completed. Current status based on Tier 2 added on 2011; FAE3 and not reporting EPMC for new employees.



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Miscellaneous Alternative Benefits

Current Employees – Tier 1

Scenario	Tier 1 Cost Savings		General Fund Cost Savings Projections (Annual)	
■ City does not pay 5% EPMC	Tier 1 EPMC	5.0%	Year 1	\$445,000
	PERS on PERS	<u>0.8%</u>	Year 5	384,000
	Total	5.8%	Year 11	276,000
■ Phase into no EPMC in two years (Employee pays 4.5% in 2012/13 and 7% in 2013/14)	Tier 1 EPMC	5.0%	Year 1	\$228,000
	PERS on PERS	<u>0.8%</u>	Year 5	384,000
	Total	5.8%	Year 11	276,000
■ \$20516 Cost Sharing EE pays portion of ER rates – Shift 5% to employees	Tier 1 ER Costs	<u>5.0%</u>	Year 1	\$382,000
	Total	5.0%	Year 5	329,000
			Year 11	238,000



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Safety Alternative Formula

New Employees – New Tier 2

Scenario	Tier 2 Cost Savings	General Fund Cost Savings Projections (Annual)	
■ Current formula with FAE3, City pays remaining 7% EPMC but does not report as PERSable wages	3.1% ¹³	Year 1	\$9,000
		Year 5	52,000
		Year 11	135,000
■ Current formula with FAE3, City does not pay EPMC	10.1%	Year 1	\$30,000
		Year 5	181,000
		Year 11	470,000
■ Lower formula to 2%@50 with FAE3, City pays EPMC but not report as PERSable wages	3.9%	Year 1	\$30,000
		Year 5	178,000
		Year 11	462,000

¹³ Completed. Current status based on Tier 2 added on 2011; FAE3 and not reporting EPMC for new employees.



Safety Alternative Formula

Current Employees – Tier 1

Scenario	Tier 1 Cost Savings	General Fund Cost Savings Projections (Annual)		
■ City does not pay remaining 7% EPMC	Tier 1 EPMC	7.0%	Year 1	\$528,000
	PERS on PERS	<u>2.0%</u>	Year 5	469,000
	Total	9.0%	Year 11	345,000
■ Phase into no EPMC in two years (Employee pays 2.5% in 2012/13, 2.5% in 2013/14, 2% in 2014/15)	Tier 1 EPMC	7.0%	Year 1	\$198,000
	PERS on PERS	<u>2.0%</u>	Year 5	469,000
	Total	9.0%	Year 11	345,000
■ §20516 Cost Sharing EE pays portion of ER rates – Shift 7% to employees	Tier 1 ER Costs	<u>7.0%</u>	Year 1	\$412,000
	Total	7.0%	Year 5	366,000
			Year 11	270,000



Estimated Savings
(000's)
Miscellaneous
Tier 1 – No Change
Tier 2 – Current Formula with FAE3, No Reporting EPMC

Savings 2% @ 55 FAE3						
CalPERS Projected Payroll				City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2012/13	\$ 9	\$ -	\$ 9	\$ 7	\$ -	\$ 7
2013/14	19	-	19	12	-	12
2014/15	28	-	28	19	-	19
2015/16	39	-	39	25	-	25
2016/17	49	-	49	33	-	33
2017/18	61	-	61	41	-	41
2018/19	72	-	72	48	-	48
2019/20	84	-	84	57	-	57
2020/21	95	-	95	65	-	65
2021/22	107	-	107	74	-	74
2022/23	120	-	120	83	-	83



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Estimated Savings
(000's)
Miscellaneous
Tier 1 - No Change
Tier 2 – Current Formula with FAE3, No EPMC

Savings 2% @ 55 FAE3						
CalPERS Projected Payroll				City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2012/13	\$ 9	\$ 35	\$ 44	\$ 7	\$ 25	\$ 32
2013/14	19	69	88	12	45	57
2014/15	28	104	132	19	68	87
2015/16	39	142	181	25	93	118
2016/17	49	182	231	33	120	153
2017/18	61	223	284	41	149	190
2018/19	72	264	336	48	178	226
2019/20	84	307	391	57	210	267
2020/21	95	350	445	65	241	306
2021/22	107	394	501	74	273	347
2022/23	120	440	560	83	306	389



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Estimated Savings
(000's)
Miscellaneous
Tier 1 - No EPMC
Tier 2 – Current Formula with FAE3, No EPMC

Savings 2% @ 55 FAE3						
CalPERS Projected Payroll				City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2012/13	\$ 95	\$ 555	\$ 650	\$ 70	\$ 407	\$ 477
2013/14	101	573	674	73	415	488
2014/15	108	591	699	77	426	503
2015/16	115	611	726	82	436	518
2016/17	123	630	753	87	450	537
2017/18	131	651	782	92	463	555
2018/19	139	672	811	98	478	576
2019/20	147	694	841	104	494	598
2020/21	155	716	871	110	510	620
2021/22	164	740	904	116	526	642
2022/23	173	764	937	122	543	665



Estimated Savings
(000's)
Miscellaneous
Tier 1 – Phase into No EPMC in Two years
Tier 2 – Current Formula with FAE3, No EPMC

Savings 2% @ 55 FAE3						
CalPERS Projected Payroll				City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2012/13	\$ 53	\$ 301	\$ 354	\$ 39	\$ 221	\$ 260
2013/14	101	573	674	73	415	488
2014/15	108	591	699	77	426	503
2015/16	115	611	726	82	436	518
2016/17	123	630	753	87	450	537
2017/18	131	651	782	92	463	555
2018/19	139	672	811	98	478	576
2019/20	147	694	841	104	494	598
2020/21	155	716	871	110	510	620
2021/22	164	740	904	116	526	642
2022/23	173	764	937	122	543	665



Estimated Savings
 (000's)
Miscellaneous
Tier 1 – No Change
Tier 2 – 2% @ 60 with FAE3, No Reporting EPMC

Savings 2% @ 60 FAE3						
CalPERS Projected Payroll				City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2012/13	\$ 17	\$ -	\$ 17	\$ 13	\$ -	\$ 13
2013/14	34	-	34	22	-	22
2014/15	52	-	52	34	-	34
2015/16	70	-	70	46	-	46
2016/17	90	-	90	59	-	59
2017/18	110	-	110	74	-	74
2018/19	130	-	130	88	-	88
2019/20	152	-	152	104	-	104
2020/21	173	-	173	119	-	119
2021/22	195	-	195	135	-	135
2022/23	218	-	218	151	-	151



Estimated Savings
 (000's)

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Estimated Savings

(000's)

Safety

Tier 1 – No Change

Tier 2 – Current Formula with FAE3, No Reporting EPMC

	Savings 3% @ 55 FAE3,		
Year	Employer Contribution	Employee Contribution	Total
2012/13	\$ 9	\$ -	\$ 9
2013/14	19	-	19
2014/15	29	-	29
2015/16	41	-	41
2016/17	52	-	52
2017/18	65	-	65
2018/19	78	-	78
2019/20	92	-	92
2020/21	106	-	106
2021/22	120	-	120
2022/23	135	-	135



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Estimated Savings

(000's)

Safety

Tier 1 - No Change

Tier 2 – Current Formula with FAE3, No EPMC

	Savings 3% @ 55 FAE3		
Year	Employer Contribution	Employee Contribution	Total
2012/13	\$ 9	\$ 21	\$ 30
2013/14	20	46	66
2014/15	31	71	102
2015/16	43	98	141
2016/17	55	126	181
2017/18	69	157	226
2018/19	83	189	272
2019/20	97	222	319
2020/21	112	256	368
2021/22	128	292	420
2022/23	143	327	470



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Estimated Savings

(000's)

Safety

Tier 1 - No EPMC

Tier 2 – Current Formula with FAE3, No EPMC

	Savings 3% @ 55 FAE3		
Year	Employer Contribution	Employee Contribution	Total
2012/13	\$ 125	\$ 433	\$ 558
2013/14	133	447	580
2014/15	141	462	603
2015/16	150	477	627
2016/17	158	492	650
2017/18	168	508	676
2018/19	177	525	702
2019/20	187	542	729
2020/21	198	559	757
2021/22	208	578	786
2022/23	219	596	815



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Estimated Savings

(000's)

Safety

Tier 1 – Phase into No EPMC in Two years

Tier 2 – Current Formula with FAE3, No EPMC

	Savings 3% @ 55 FAE3		
Year	Employer Contribution	Employee Contribution	Total
2012/13	\$ 53	\$ 175	\$ 228
2013/14	102	338	440
2014/15	141	462	603
2015/16	150	477	627
2016/17	158	492	650
2017/18	168	508	676
2018/19	177	525	702
2019/20	187	542	729
2020/21	198	559	757
2021/22	208	578	786
2022/23	219	596	815



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Estimated Savings

(000's)

Safety

Tier 1 – No Change

Tier 2 – 2% @ 50 with FAE3, No Reporting EPMC

	Savings 2% @ 50 FAE3		
Year	Employer Contribution	Employee Contribution	Total
2012/13	\$ 9	\$ 21	\$ 30
2013/14	19	46	65
2014/15	29	71	100
2015/16	41	98	139
2016/17	52	126	178
2017/18	65	157	222
2018/19	78	189	267
2019/20	92	222	314
2020/21	106	256	362
2021/22	120	292	412
2022/23	135	327	462



Estimated Savings

(000's)

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Projected Payroll
(000's)

Miscellaneous
Tier 1 with EPMC, Tier 2 without EPMC

Year	CalPERS Projected Payroll			City Projected Payroll		
	Tier 1	Tier 2	Total	Tier 1	Tier 2	Total
2012/13	\$ 10,923	\$ 690	\$ 11,612	\$ 8,020	\$ 507	\$ 8,527
2013/14	10,587	1,370	11,957	7,774	904	8,678
2014/15	10,229	2,083	12,312	7,511	1,362	8,873
2015/16	9,831	2,847	12,678	7,218	1,854	9,072
2016/17	9,418	3,636	13,055	6,916	2,404	9,319
2017/18	8,981	4,463	13,444	6,594	2,979	9,574
2018/19	8,576	5,272	13,847	6,297	3,564	9,861
2019/20	8,113	6,149	14,262	5,957	4,198	10,155
2020/21	7,691	7,002	14,693	5,647	4,814	10,461
2021/22	7,252	7,885	15,138	5,325	5,452	10,777
2022/23	6,801	8,796	15,597	4,993	6,110	11,103



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Projected Payroll
(000's)

Miscellaneous
Tier 1 and Tier 2 without EPMC

Year	CalPERS Projected Payroll			City Projected Payroll		
	Tier 1	Tier 2	Total	Tier 1	Tier 2	Total
2012/13	\$ 10,402	\$ 690	\$ 11,092	\$ 7,638	\$ 507	\$ 8,145
2013/14	10,083	1,370	11,453	7,404	904	8,308
2014/15	9,742	2,083	11,825	7,153	1,362	8,515
2015/16	9,363	2,847	12,209	6,875	1,854	8,728
2016/17	8,970	3,636	12,606	6,586	2,404	8,990
2017/18	8,553	4,463	13,016	6,280	2,979	9,260
2018/19	8,167	5,272	13,439	5,997	3,564	9,561
2019/20	7,726	6,149	13,876	5,673	4,198	9,871
2020/21	7,324	7,002	14,327	5,378	4,814	10,192
2021/22	6,907	7,885	14,792	5,071	5,452	10,524
2022/23	6,477	8,796	15,273	4,756	6,110	10,866



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Projected Payroll
(000's)

Miscellaneous

Tier 1 Phase into no EPMC, Tier 2 without EPMC

Year	Pay CalPERS Projected			Pay Client Projected		
	Tier 1	Tier 2	Total	Tier 1	Tier 2	Total
2012/13	\$ 10,656	\$ 690	\$ 11,346	\$ 7,824	\$ 507	\$ 8,331
2013/14	10,083	1,370	11,453	7,404	904	8,308
2014/15	9,742	2,083	11,825	7,153	1,362	8,515
2015/16	9,363	2,847	12,209	6,875	1,854	8,728
2016/17	8,970	3,636	12,606	6,586	2,404	8,990
2017/18	8,553	4,463	13,016	6,280	2,979	9,260
2018/19	8,167	5,272	13,439	5,997	3,564	9,561
2019/20	7,726	6,149	13,876	5,673	4,198	9,871
2020/21	7,324	7,002	14,327	5,378	4,814	10,192
2021/22	6,907	7,885	14,792	5,071	5,452	10,524
2022/23	6,477	8,796	15,273	4,756	6,110	10,866



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Projected Payroll
(000's)

Safety

Tier 1 with EPMC, Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2012/13	\$ 6,298	\$ 301	\$ 6,621
2013/14	6,129	661	6,836
2014/15	5,975	1,012	7,058
2015/16	5,783	1,406	7,287
2016/17	5,596	1,802	7,524
2017/18	5,368	2,244	7,769
2018/19	5,135	2,697	8,021
2019/20	4,886	3,174	8,282
2020/21	4,631	3,664	8,551
2021/22	4,373	4,165	8,829
2022/23	4,120	4,669	9,116



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**Projected Payroll
(000's)**

Safety

Tier 1 and Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2012/13	\$ 5,886	\$ 301	\$ 6,187
2013/14	5,728	661	6,389
2014/15	5,584	1,012	6,596
2015/16	5,405	1,406	6,811
2016/17	5,230	1,802	7,032
2017/18	5,016	2,244	7,260
2018/19	4,799	2,697	7,496
2019/20	4,566	3,174	7,740
2020/21	4,328	3,664	7,992
2021/22	4,087	4,165	8,251
2022/23	3,851	4,669	8,519



**Projected Payroll
(000's)**

Safety

Tier 1 Phase into no EPMC, Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2012/13	\$ 6,145	\$ 301	\$ 6,446
2013/14	5,837	661	6,498
2014/15	5,584	1,012	6,596
2015/16	5,405	1,406	6,811
2016/17	5,230	1,802	7,032
2017/18	5,016	2,244	7,260
2018/19	4,799	2,697	7,496
2019/20	4,566	3,174	7,740
2020/21	4,328	3,664	7,992
2021/22	4,087	4,165	8,251
2022/23	3,851	4,669	8,519



CalPERS Smoothing Method

6/30/2009:	<u>Unmodified</u>	<u>Modified</u>
Market Value	100.0%	100.0%
Actuarial Value	120.0%	137.0%
6/30/2010:	<u>13.3%</u>	<u>13.3%</u>
Market Value	113.3%	113.3%
Actuarial Value:		
1. Project @ 7.75%	129.3%	147.6%
2. Adjust:[(MV-AV) x (1/15)]	128.2%	145.3%
3. Limited by corridor [Unmodified: 120%, Modified: 130%]	128.2%	145.3%
Actuarial Rate of Return	6.9%	6.1%
Ratio of Actuarial Value to Market Value	113.2%	128.2%



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CalPERS Smoothing Method

Actuarial Asset Values	<u>Unmodified</u>	<u>Modified</u>
● Project Assets forward	7.75%	7.75%
● Asset Gain/Losses Recognized	15 Years	15 Years
● Ratio of Actuarial to Market Value of Assets	80-120%	60-140%
Actuarial Asset Methods		
● Amortization		
○ Years	30 Years	30 Years
○ Factor	6%	6%
● Minimum	Normal Cost less 30 Year Amortization of Surplus	Normal Cost less 30 Year Amortization of Surplus



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